DIVISION 2

EARTHWORK

SECTION 2-01 CLEARING, GRUBBING, AND ROADSIDE CLEANUP

2-01.2 DISPOSAL (4-19-94)

Supplement paragraph 2 with the following:

Copies of permits for borrow and waste sites and reclamation plans for pits shall be furnished to the Engineer by the Contractor before any waste is hauled off the project.

Delete paragraphs 3 and 4, and replace with the following:

At the Pre-Construction Conference the Contractor shall submit to the Engineer a list of waste and borrow sites the Contractor proposes to use during the course of construction. The list shall identify each location, the estimated quantities and type of material to be wasted at each site or removed from each site. Should additional or alternate sites become necessary during the life of the Contract, the locations and information for each site shall be submitted to the Engineer for approval, prior to their use.

The selection of waste and borrow sites and their operation shall at all times be subject to the approval of the Engineer. No waste or borrow site shall be utilized by the Contractor until the proper grading permits and property owner agreements have been obtained by the Contractor and copies submitted to the Engineer. Utilization of a site without a legal grading permit, a consent agreement from the property owner, and approval of the Engineer will be considered unauthorized.

Delete the last paragraph and replace with the following:

Effective June 1, 1991 and in accordance with SMC 21.36 as amended by Ordinance 115589, no waste generated within the City of Seattle shall be deposited in a waste disposal facility owned and operated by King County. Waste that is labeled Unacceptable Waste must be disposed of in accordance with all applicable local, state and federal regulations. For all Unacceptable Waste, the Contractor must obtain a Waste Clearance through the Seattle King County Department of Public Health (SKCDPH). Samples of Waste Clearance Program Instructions and forms are provided in the Appendix. Additional copies of the forms or information regarding the forms may be obtained by calling SKCDPH at 296-4633.

A list of some disposal options and approximate rates is provided in the Appendix. Also provided is a list of recycling and disposal sites. The information provided is for the convenience of the Contractor. It is the responsibility of the Contractor to verify the accuracy of this information prior to bid.

Final cleanup shall be in accordance with the requirements specified in the Grading Ordinance, permits, property agreements and other Contract Documents. Upon completion of grading and cleanup operations at any private-owned site for which a written agreement between the Contractor and property owner is required, the Contractor shall obtain and furnish to the Engineer a release from all damages, duly executed by the property owner, stating that the restoration of the property has been satisfactorily accomplished. Retainage withheld from the Contractor's payments will not be released until all such property owner releases have been furnished to the Engineer. Should a release be arbitrarily withheld, in the opinion of the Owner, the Owner may, at its sole discretion, accept that portion of the Work involved and cause final payment to be made.

2-01.3(1) CLEARING (7-6-93)

Delete paragraph 2 and 3 of this section and replace with the following:

If branch trimming is required of trees that are to remain, it shall be done in accordance to Section 1-07.16(2).

Only trees marked for removal shall be felled within the area to be cleared. Where the tree limb structure interferes with utility wires, or where the tree to be felled is in close proximity to utility wires, the tree shall not be taken down without permission from Seattle City Light.

2-01.5 PAYMENT

Delete this section and replace with the following:

If the Bid Form does not include a pay item pertaining to the work of "Clearing", "Grubbing", or "Clearing and Grubbing", then the work specified shall be considered as incidental to the construction of the project and all costs incurred by the Contractor shall be included in the prices bid for other items of the construction.

Roadside cleanup shall be considered as incidental to the construction of the project.

All costs and expenses involved in securing, operating and maintaining any waste or borrow site (including final cleanup and any erosion or anti-pollution controls required in the permits, property owner agreements, grading regulations, and other contract documents) will be considered incidental to the Contract, and such costs and expenses shall be included in the contract prices for the various pay items shown in the Bid Form.

SECTION 2-02 REMOVAL OF STRUCTURES AND OBSTRUCTIONS

2-02.3(6) SAWING AND LINE DRILLING

Delete paragraph 1 of this section and replace with the following:

When saw cutting concrete pavement, driveway or sidewalk, with or without asphalt overlay, the minimum depth of sawcut shall be such that one-half the thickness of the Portland cement concrete is cut. The maximum depth of saw cut shall be such that no more than three-fourths of the thickness of the concrete base is cut.

Delete paragraph 4 of this section and replace with the following:

When line drilling, spacing of drilled holes center to center shall be 6 inches maximum and hole diameters shall be 1-1/2 inches minimum. Holes shall be perpendicular to the surface and shall penetrate completely through the pavement.

Supplement this section with the following:

In addition to the pollution control requirements of 1-07.5 the Contractor shall take special precautions to ensure that no concrete or concrete by-products from, or used in, the saw-cutting of Asphalt Cement or Cement Concrete pavements, sidewalks, curbs, etc. are discharged into any storm drain or surface water system. Such discharge is prohibited by the Department of Ecology. In as much as cutting operations increase the pH of the wastewater filtering prior to discharge will NOT be acceptable.

To thoroughly clean sawcuts the Contractor shall use high pressure water (water under at least 1400 psi.) to flush the cuts while simultaneously collecting the all wastewater using a wet-dry vacuum or similar method, or the wastewater may be pumped directly into drums for disposal. Disposal of waste liquid may be to soil or other porous surfaces away from storm drains and surface water ONLY if the Contractor collects and disposes of the remaining sediment after the water has filtered into the soil or evaporated. Impervious surfaces contaminated with sediment and grit from saw-cutting, planing or pulverizing operations shall be cleaned by sweepers to prevent contaminants from entering the storm drainage system or surface waters when it rains.

Per Section 1-07.5 the cost of pollution control measures taken by the Contractor to prevent saw-cutting or planing contaminants from polluting storm drains or surface water shall be included in the unit Bid prices of the various items of Work which comprise this Contract.

2-02.4 MEASUREMENT

Supplement this section with the following:

***Measurement for "Remove Landscaping Items" will be per lump sum.**

Measurement for "Remove Existing Flow Monitoring Structure" and "Relocate Irrigation Head" will be per each.

Measurement for "Remove Cem Conc Sidewalk, Driveway and Steps" will be by the square yard.*

2-02.5 PAYMENT

Supplement this section with the following:

***The lump sum price for "Remove Landscaping Items" shall include all costs for the work required to remove and dispose of items indicated on Drawing Sheet 2: remove yucca, wood border, shrubs, pavers, stones, hedges, brick border and brick trim. Any additional landscaping items requiring removal will be considered incidental to the various bid items comprising this contract and no separate or additional payment will be made.**

The unit contract price for "Remove Existing Flow Monitoring Structure" shall include all costs for the work required to remove and dispose of the monitoring structure indicated on Drawing Sheet 2 including salvage of weir plate, frame and monitoring tube.

The unit contract price for "Remove Cem Conc Sidewalk, Driveway and Steps" shall include all costs for the work required to remove and dispose of all sidewalk, driveway and steps.

The unit contract price for "Relocate Irrigation Head" shall include all costs for the work required to relocate the irrigation heads indicated on Drawing Sheet 2 including furnishing and installing any necessary piping.*

SECTION 2-03 ROADWAY EXCAVATION AND EMBANKMENT

2-03.3(7) DISPOSAL OF SURPLUS MATERIAL (8-30-90)

Supplement paragraph 2 with the following:

Wetlands are defined as those areas inundated or saturated by ground or surface water at a frequency and duration sufficient to support, and, under normal circumstances, do support a prevalence of vegetation typically adapted to life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

2-03.3(19) CONSTRUCTION REQUIREMENTS OF VEGETATED SWALES (New Section)

*Construction of the Vegetated Swales shall consist of excavation, embankment construction, soil amending, compaction and finish grading. Finish grade of the Vegetated Swales shall be the Bottom Swale Elevation (BSE) as shown on the Drawings and/or as required by staking in the field, and/or as directed by the Engineer.

The Contractor shall delineate with marking paint the limits of swale grading prior to commencement of excavation. Upon approval of paint markings, stakes and temporary construction fencing shall be set to maintain limits of excavation as directed by the Engineer.

The Contractor shall excavate the Vegetated Swales to the elevation needed to achieve the BSE, taking into account the required quantities of organic compost and soil amendments.

After rough grading to the adjusted BSE, Contractor shall call SPU's Geotechnical Engineer (Al Rice, 206.386.1299) to evaluate native soil material properties. If the Geotechnical Engineer determines a swale liner is necessary, the Contractor shall perform additional excavation as necessary to place a clay liner. The Contractor shall store excavated soils onsite in the quantity necessary for the Vegetated Swale Planting Soil Type B. Native soil selected for use shall be approved by Engineer. Onsite soil fill shall not have mixed into it any of the following: Large woody debris or refuse (garbage, old sewer/drainage pipe, concrete & asphalt chunks, sod or the like). This soil shall be amended per Section 9-14.1(6), Planting Soil Type B, prior to placement back into the vegetated swales. Contractor shall compact the Planting Soil Type B with a water filled drum.

Fills and embankments shall be placed in lifts not exceeding 6 inches, with each lift compacted to 85% maximum density, as determined by the compaction control test specified in Section 2-03.3(14)E. When vegetated swale berming requires embankment construction greater than one-foot above the proposed ground elevation outside of swale, a PVC liner shall be placed within the bermed area. Liner shall be installed in accordance with Section 8-23.3.

If a swale liner is not required, native soil shall be amended as described herein to meet requirements of Planting Soil Type B. Decomposed Organic Compost and required amendments shall be incorporated in two lifts over the entire planting area. The first lift of decomposed organic compost shall be 3 to 4-inches, and rotilled into the soil to a six to eight-inch depth. The second lift shall be 2 to 3-inches of decomposed organic compost, and the required soil amendments; the second lift shall be rotilled into the soil to a six to eight-inch depth to a homogenous blend. The Contractor shall compact the Planting Soil Type B with a water filled drum.

Planting Soil, Roadside Planting Soil and Mineral Aggregate, Type 26, Modified shall be placed as

indicated on the Drawings and/or as directed by the Engineer.

Planting Soil and decomposed organic compost shall not be placed when the ground or planting soil is frozen, excessively wet or, in the opinion of the Engineer, in a condition detrimental to the work.

After all fill and embankment material has been placed, the Contractor shall grade the vegetated swale areas to the BSE finished grade. Should grading conflict with existing site conditions, consult with the Engineer prior to proceeding with the work. The slopes shall be graded in a uniform manner per Standard Plan No. 140 or as set by the Engineer. Rounding shall be done at abrupt changes in surfaces. Feather grades gradually to meet existing contours. Minor adjustments to the BSE grading and contouring shown is anticipated to meet site conditions and to provide for the intent of grading. Hand grading and final refinement of channel and landscape areas shall be as directed by the Engineer. The Engineer shall have final approval of all grading and contouring.

2-03.5 PAYMENT

Supplement paragraph 7 with the following:

***The "Embankment Compaction" bid item will be limited to Vegetated Swales requiring clay liners. After the clay liner(s) is constructed, select native and decomposed organic compost shall be mixed, placed and compacted in the swale. The work required to place and hand compact this volume of material will be paid as "Embankment Compaction".**

No separate payment will be made for hand compaction of swale soils not removed for clay liner construction.*

Supplement this section with the following:

***(9) "Finish Grading," per square foot.**

The unit contract price for "Finish Grading" shall include all costs for the work required to hand grade the areas in and around the vegetated swales as specified.

Payment for Planting Soil and Decomposed Organic Compost will be made in accordance with Section 8-02.*

SECTION 2-10 DITCH AND CHANNEL EXCAVATION

2-10.1 DESCRIPTION

Supplement this section with the following:

Ditch retrofitting shall involve removing and disposing of the existing asphalt bottom, excavating and grading the ditch as indicated on the Drawings and lining the ditch with rounded river rock.

2-10.5 PAYMENT

Delete this section and replace with the following:

Payment for the work required to retrofit the ditches indicated on the Drawings will be made at the unit prices bid for "Common Excavation" and "Rounded River Rock, (Size)".

DIVISION 4

BASES

SECTION 4-01 MINERAL AGGREGATES

4-01.2 MATERIALS

Delete this section and replace with the following:

Grading of all mineral aggregate shall meet the requirements of the Mineral Aggregate Table in Section 9-03.16. At the option of the Contractor, recycled concrete crushed to the requirements of Section 9-03.16 will be permitted as a substitute for mineral aggregate. **However, crushed concrete will not be permitted in exposed areas (pathways, roadway shoulders) or where free drainage is required (wall backfill).**

Mineral Aggregate, Type 26, Modified shall consist of 50% M.A. Type 26 blended in the field with 50% Decomposed Organic Compost.

4-01.4 MEASUREMENT (12-4-91)

Delete paragraphs 2 and 3 and replace with the following:

Mineral aggregate of the type specified, or crushed concrete as permitted by Section 9-03.0, will be measured by the ton or cubic yard as specified in the Bid Form. Measurement for payment of mineral aggregates or crushed concrete shall be in accordance with Section 1-09.1.

4-01.5 PAYMENT

Delete paragraph 2 and replace with the following:

The unit contract price for "Mineral Aggregate (Type)" shall include all costs of furnishing, hauling, stockpiling, placing, grading and compacting the mineral aggregate or crushed concrete.

Supplement this section with the following:

No separate payment will be made for Mineral Aggregate, Type 26 Modified. Payment for the work required to field mix and install Mineral Aggregate, Type 26 Modified will be made at the unit contract prices bid for "Mineral Aggregate, Type 26" and "Decomposed Organic Compost".

DIVISION 5

SURFACE TREATMENTS AND PAVEMENTS

SECTION 5-04 ASPHALT CONCRETE PAVEMENT

5-04.1 DESCRIPTION (5-15-91)

Delete sentence 1 in paragraph 3 and replace with the following:

Asphalt Concrete Class A, Class B, Class D, Class F and Class G are designated as leveling or wearing courses.

5-04.3(2) HAULING EQUIPMENT (2-25-94)

Delete this section and replace with the following:

Trucks used for hauling asphalt concrete mixtures shall have tight, clean, smooth metal beds which have been thinly coated with a minimum amount of paraffin oil, or other approved material to prevent the mixture from adhering to the beds. Each truck shall have a cover of canvas or other suitable material of sufficient size to protect the mixture from the weather.

When dump truck beds are sprayed with oil, the excess oil shall be drained prior to filling with the asphalt mixture. For hopper trucks, the conveyer shall be in operation during the process of oiling the bed.

5-04.3(9)A GENERAL (1-18-94)

Delete this section and replace with the following:

The asphalt concrete mixture shall be placed at a temperature of not less than 250^{o} F. upon an approved surface, spread, and struck off to the grade and elevation established. Asphalt pavers complying with Section 5-04.3(4)A shall be used to distribute the mixture. Unless otherwise directed by the Engineer or specified in the Drawings or Project Manual, the nominal compacted depth of any layer of any course shall not exceed the following depths:

Asphalt Concrete Class E	0.25 foot (3 inches)
Asphalt Concrete Class A and B when used for Base Course	0.25 foot (3 inches)
Asphalt Concrete Class A, B and F	0.16 foot (2 inches)
Asphalt Concrete Class G	0.10 foot (1-1/2 inches)
Asphalt Concrete Class D	0.08 foot (1 inch)

When more than 1 course is necessary to meet the final paving grade, the first course shall include any widening of the existing roadway and preleveling of the existing pavement surface. The preleveling course or courses shall be constructed so that the final wearing course will have a uniform compacted depth and will conform to the finished grade and cross section elevations specified.

Construction of 1 course upon another shall not proceed until the underlying course has completely cooled and set.

Unless otherwise directed by the Engineer, the construction of each course of asphalt concrete pavement shall commence at the point farthest away from the mixing plant and progress toward the plant so that no hauling will be done over freshly placed pavement.

On areas where irregularities or unavoidable obstacles make the use of mechanical spreading and finishing equipment impractical, the paving may be done with other equipment or by hand.

The placing of asphalt mixtures at night will not be permitted except by approval of the Engineer or if specified in the Project Manual.

When the asphalt mixture is being produced by more than one asphalt plant, the material produced by each plant shall be placed by separate spreading and compacting equipment.

The internal temperature of the mix should not be less than 185 degrees F. upon achieving density requirements in accordance with the applicable specifications. Should the Contractor not achieve specification densities at temperatures of 185 degrees F. or above 185 degrees F., he will be permitted to continue to compact with steel wheeled rollers or a pneumatic tired roller provided that future compaction operations are adjusted to meet the density requirements at the aforementioned temperature. The vibratory roller, in the vibratory mode, shall not be used under any circumstances whenever the internal temperature of the mixture is below 175 degrees F.

5-04.3(10)B CONTROL (2-1-92)

Delete this section and replace with the following:

For asphalt concrete Classes A, B, E, F and G, where paving is in the traffic lanes, including lanes for ramps, truck climbing, weaving, speed changes, and left turn channelization, and the specified compacted course thickness is greater than 0.10 foot, the acceptable level of compaction shall be a minimum of 92 percent of the maximum density as determined by WSDOT Test Method 705. The level of compaction attained will be determined as the average of not less than 5 nuclear density gauge tests taken on the day the mix is placed

(after completion of the finish rolling) at randomly selected locations within each lot. The quantity represented by each lot will be no greater than a single day's production or approximately 400 tons, whichever is less.

Control lots not meeting the minimum density standard shall be removed and replaced with satisfactory material. At the option of the Engineer, noncomplying material may be accepted at a reduced price.

Cores may be used as an alternate to the nuclear density gauge tests. When cores are taken by the Engineer at the request of the Contractor, the request shall be made by noon of the first working day following placement of the mix. The Engineer shall be reimbursed for the coring expenses at the rate of $75 per core when the core indicates the acceptable level of compaction within a lot has not been achieved.

At the start of paving, if requested by the Contractor, a compaction test section shall be constructed as directed by the Engineer to determine the compactibility of the mix design. Compactibility shall be based on the ability of the mix to attain the specified minimum density (92 percent of the maximum density determined by WSDOT Test Method 705). Following determination of compactibility, the Contractor is responsible for the control of the compaction effort. If the Contractor does not request a test section, the mix will be considered compactible.

Asphalt Concrete Classes A, B, E, F and G constructed under conditions other than listed above shall be compacted on the basis of a test point evaluation of the compaction train. The test point evaluation shall be performed in accordance with instructions from the Engineer. The number of passes with an approved compaction train, required to attain the maximum test point density, shall be used on all subsequent paving.

Asphalt concrete Class D and preleveling mix shall be compacted to the satisfaction of the Engineer.

In addition to the randomly selected locations for tests of the control lot, the Engineer reserves the right to test any area which appears defective and to require the further compaction of areas that fall below acceptable density readings. These additional tests shall not impact the compaction evaluation of the entire control lot.

DIVISION 7

STORM DRAINS, CULVERTS, SANITARY AND COMBINED SEWERS, WATER MAINS AND RELATED STRUCTURES

SECTION 7-02 CULVERTS

7-02.1 DESCRIPTION

7-02.1(A) FLOW CONTROL PIPE (New Section)

Flow control pipe shall be installed at various locations and shall consist of 8 inch SSD, PVC pipe, overflow pipe, tees, wyes, reducers and end caps.

At each Flow Control Structure, flow control pipe shall be installed as indicated on Drawing Sheet 7 from the outside face of the structure ending at the culvert pipe (8 inch or 10 inch).

At locations W1 and W6, flow control pipe shall be installed as detailed on Drawing Sheet 8 ending at the culvert pipe (8 inch or 10 inch).

7-02.4 MEASUREMENT

Supplement this section with the following:

Measurement for "Pipe End, Culvert, D.I. Cl 52, (Size)" will be per each.

Measurement for "Pipe, Flow Control" will be by the linear foot measured through the centerline of the pipe including all fittings and the overflow pipe branches to the point of connection with the culvert pipe or the outside face of structures.

7-02.5 PAYMENT

Supplement this section with the following:

(3) *"Pipe End, Culvert, D.I. Cl 52, (Size)," per each.

The unit contract price for "Pipe End, Culvert, D.I. Cl 52, (Size)" shall include all costs for the work required to furnish and install the pipe end as detailed and as specified in the Appendix including the fernco coupling.

(4) "Pipe, Flow Control," per linear foot.

The unit contract price for "Pipe, Flow Control" shall include all costs for the work required to furnish and install

Supplement the second paragraph with the following:

The cost to clean, prep and paint exposed pvc culvert pipe ends or flow control pipe ends (as specified in the Appendix) shall be included in the price bid for "Pipe, Culvert, PVC Sched 40, (Size)" and "Flow Control Pipe".

Delete the third paragraph and replace with the following:

Removal and disposal of existing culvert pipe where new culvert pipe is to be laid shall be considered incidental to "Pipe, Culvert, (Material) (Class), (Size)" and no separate payment will be made.

SECTION 7-05 MANHOLES, CATCH BASINS, AND INLETS

7-05.3(2) CATCH BASINS AND INLETS

7-05.3(2)G FLOW CONTROL STRUCTURE (New Section)

Catch basin used in the flow control structure shall be per Standard Plan Type 241 with knockouts at top of CB. This CB shall be Pipe Inc. Type 13 or approved equal. Weep hole shall be cored in the field.

The PVC orifice plate shall be fusion welded to the PVC cross with an orifice of the diameter indicated on the Drawings drilled in its center.

The PVC shear pin shall be ¾ inch in diameter and shall be fastened with a PVC cotter pin and stainless steel washer.

One end of the shear gate chain shall be attached to the shear gate and the other end shall be attached to a galvanized anchor bolt embedded in a piece of drift wood (supplied by others). The chain shall be slack when the gate is closed.

After pipe or castings have been placed in their final positions, openings in the walls of the flow control structure shall be grouted in place to present a smooth, flush inner and outer surface.

7-05.3(2)H FLOW MONITORING POOL (New Section)

7-05.3(2)H1 DESCRIPTION & CONSTRUCTION REQUIREMENTS (New Section)

The work shall consist of supplying and installing bandara weathered granite rock, weir plate and frame, PVC liner, and rounded river rock as shown on the Drawings and/or as directed by the Engineer.

General finished rock positions shall be as indicated on the Drawings and as approved by the Engineer. Rock shall be placed so that load is not directly applied to the culvert. Support rock under culvert shall extend a minimum of 6 inches into the pool beyond the end of the culvert. Rock walls shall be constructed of 2-3 man rocks. Wall batter, backfill, slope and foundation embedment shall conform to standard Plan No. 141.1, Rock Facing.

Additionally the Contractor shall dig a trench from the flow monitoring tube approximately 20 feet to location directed by engineer. Contractor shall provide Rich Horner (206.782.7400), University of Washington, 5 days notice prior to trench excavation. Allow the University of Washington student or staff 3 days after trench excavation to install flow monitoring equipment wiring in trench. After the wiring has been placed, the Contractor shall fill trench with native soil.

7-05.3(2)H2 MATERIALS

Bandara Weathered Granite Rock 9-03.18
Rounded River Rock 8-15.2
PVC Liner 8-23.2
Weir Plate, Frame and Monitoring Tube salvaged from existing monitoring structure

7-05.4 MEASUREMENT

Supplement this section with the following:

Measurement for "Flow Control Structure" and "Flow Monitoring Pool" will be by each.

7-05.5 PAYMENT

Supplement this section with the following:

***(8) "Flow Control Structure", per each.**

The unit contract price for "Flow Control Structure" shall include all costs for the work required to furnish and install the flow control catch basin as indicated on Drawing Sheet 7 including the catch basin, frame and beehive grate, bedding, flow control device, field cored 3" weep hole, grout and all other components required for a complete installation.

The 6 Inch dia pvc outlet pipe will be paid separately as "Flow Control Pipe" in accordance with Section 7-02.

(9) "Flow Monitoring Pool", per each.

The unit contract price for "Flow Monitoring Pool" shall include all costs for the work required to furnish, haul, move, stockpile and place the Bandara granite rock, grout in pipes and salvaged weir plate/frame and install salvaged flow monitoring tube.

PVC liner and rounded river rock will be measured and paid separately.*

SECTION 7-11 PIPE INSTALLATION FOR WATERMAINS

7-11.5 PAYMENT

Supplement this section with the following:

(7) "Reconnect Water Service Line," per each.

The unit contract price for "Reconnect Water Service Line" shall include all costs for the work required to reconnect water service line as indicated on the Drawings including any required piping and fittings.

SECTION 7-17 STORM DRAINS AND SANITARY SEWERS

7-17.3(1)B1 GENERAL (2-20-91)

Delete paragraph 1 and replace with the following:

Bedding of the class or classes shown on the Drawings or described in the Project Manual shall be installed in accordance with Standard Plan 285, and shall include all the materials and work within the limits of the pipe zone.

Unless otherwise noted on the Drawings, Bedding for rigid and flexible pipe shall be Class B except Bedding for ductile iron pipe shall be Class D.

7-17.3(1)B2 BEDDING FOR RIGID PIPE (1-18-94)

Delete this section and replace with the following:

Plain and reinforced concrete pipe, vitrified clay pipe and ductile iron pipe shall be considered Rigid Pipe. Bedding shall be classified as Class A, Class B, Class C and Class D. The requirements and limits for the various classes of bedding are as shown on Standard Plan No. 285 and as described below:

1. **Class A Bedding**: Concrete for Class A bedding shall be minimum of Class 4 (1-1/2). Concrete shall be allowed to cure for a minimum of 12 hours prior to placing the Mineral Aggregate Type 9 bedding material. Mineral aggregate bedding shall then be placed in lifts of not more than 6 inches to a point 6 inches above the top of the pipe. Before beginning work on concrete bedding, the Contractor shall submit a mix design for Class 4 concrete to the Engineer for approval. It shall have a sufficiently fluid consistency to readily fill all voids around and under the pipe.
2. **Class B Bedding**: Class B bedding of Mineral Aggregate Type 9 shall be placed in at least three lifts. The first lift shall be placed before the pipe is installed and shall be a minimum of 4 to 6 inches in thickness (see dimension "a" on Standard Plan No. 285). The material shall be spread smoothly so that the pipe is uniformly supported along the barrel. Subsequent lifts of not more than 6 inches shall be brought up to a point 6 inches above the top of the pipe. Each lift shall be brought up on both sides of the pipe and shall be carefully worked under the pipe haunches by means of slicing with a shovel, vibration, or other procedures approved by the Engineer.
3. **Class C Bedding**: Requirements for Class C bedding shall be the same as for Class B except that the Mineral Aggregate Type 9 bedding material shall extend only to the springline of the pipe. Selected native material shall then be placed in 6 inch lifts to 6 inches above the pipe, using the same methods as those required for Class B bedding. Compaction of native material shall be as specified in Section 7-17.3(3).
4. **Class D Bedding**: Class D bedding shall be attained by carefully excavating the trench to proper grade, overexcavating at the bell sections, and placing and compacting select native material around the pipe. Backfill shall be in accordance with Section 7-17.3(3).

Where unauthorized excavation has been made below the established grade, the Contractor shall provide, place, and compact suitable bedding material to the proper grade and elevation. If the Engineer substitutes imported mineral aggregate in lieu of the selected native material shown for Class C and for Class D bedding on Standard Plan No. 285, the bedding will be measured and paid for as "Bedding, Class B, (Size) Pipe."

7-17.3(1)B3 BEDDING FOR FLEXIBLE PIPE (2-20-91)

Delete this section and replace with the following:

Bedding for flexible pipe such as corrugated metal, PVC and ABS shall be Class B bedding with Mineral Aggregate Type 22 placed in several lifts in accordance with Standard Plan No. 285. Before installing the pipe, a first bedding lift of 4 or 6 inch thickness, depending on pipe size, shall be placed. Then the pipe is installed. The bedding shall be spread smoothly so that the pipe is uniformly supported along the barrel. Subsequent lifts of not more than 6 inches thickness shall be installed to the crown of the pipe and individually compacted to 90% density as determined by ASTM D698. A further 6 inch lift of moderately compacted material shall be placed over the crown of the pipe.

7-17.5 PAYMENT

Delete paragraph 3 and replace with the following:

The unit contract price for "Bedding (Class A, B, or C), (Size) Pipe" shall include all costs for work required to furnish and install bedding to the cross section shown in Standard Plan 285. Cost of Class D bedding shall be included in the bid item for cost of pipe per linear foot and therefore no payment will be made for Class D bedding.

DIVISION 8

MISCELLANEOUS CONSTRUCTION

SECTION 8-01 EROSION CONTROL

8-01.1 DESCRIPTION

Supplement this section with the following:

*** In addition to all normal precautionary erosion control operations, a silt fence shall be constructed as detailed in the Appendix and installed as directed by the Engineer to confine all soils within the construction zone and out of drainage ditches.***

8-01.2 MATERIALS (2-4-93)

Delete this section and replace with the following:

Materials shall meet the requirements of the following Sections:

Seed	9-14
Fertilizer	9-14
Lime	9-14
Mulch and Amendments	9-14
Tackifier	9-14

8-01.3(1)A CULTIVATION (1-18-94)

Delete this section and replace with the following:

Areas to be cultivated shall be indicated on the Drawings or specified in the Project Manual. They shall be cultivated to a minimum depth of 4 inches and shall provide a reasonably firm but friable seed bed. Cultivation shall not take place if the soil is excessively wet. Seeding shall take place within 2 weeks of cultivation. When topsoil, lime, decomposed organic mulch, or other amendments are required, they shall be incorporated into the subgrade by rototilling to a depth of 4 inches or deeper as required to provide the desired homogenous mixture.

Cultivation of the soil may be by rototilling, farm disc, harrow, or other suitable equipment approved by the Engineer. Cultivation shall be done at right angles to the natural flow of water on the slope unless otherwise ordered by the Engineer.

Prior to the cultivation, the Contractor shall remove all visible rocks, clods and debris 1-1/2 inches or larger in any dimension. Any exposed tree roots in cut slopes shall be cleanly cut at the finished grade of the slope. Cultivation within the dripline of existing trees to be retained shall be reduced in depth as directed by the Engineer.

8-01.3(4)A SEEDING (6-2-92)

Delete this section and replace with the following:

The Contractor shall notify the Engineer not less than 24 hours in advance of any seeding operation and shall not begin the work until areas prepared or designated for seeding have been approved. Following the Engineer's approval, seeding of the approved slopes shall begin immediately.

Seeding shall not be done during windy weather or when the ground is frozen, excessively wet, or otherwise untillable. Unless otherwise specified in the Project Manual, seed of the seed mix specified shall be placed at the rate specified in Section 9-14.2. Seed shall be sown by one of the following methods:

(a) An approved hydro-seeder which utilizes water as the carrying agent and maintains continuous agitation through paddle blades. It shall have an operating capacity sufficient to agitate, suspend, and mix into a homogeneous slurry the specified amount of seed and water or other material. Distribution and discharge lines shall be large enough to prevent stoppage and shall be equipped with a set of hydraulic discharge spray nozzles which will provide a uniform distribution of the slurry.

(b) Approved hand seeders for small area applications.

Areas in which the above methods are impractical may be seeded by approved hand methods.

Seed and fertilizer may be applied in one application provided that the fertilizer is placed in the hydroseeder tank no more than 30 minutes prior to application. The seed shall have a tracer added to visibly aid uniform

application. This tracer shall not be harmful to plant and animal life. If wood cellulose fiber is used as a tracer, the application rate shall not exceed 250 pounds per acre.

8-01.3(4)B FERTILIZING (3-18-93)

Delete this section and replace with the following:

Unless otherwise specified in the Project Manual, fertilizer shall be applied in accordance with the procedures and requirements for seeding in Section 8-01.3(4)A and applied as specified in Section 9-14.3 with regard to formulation and rate of application.

8-01.3(5) MULCHING (3-18-93)

Delete this section and replace with the following:

Wood cellulose fiber mulch, as specified in Section 9-14.4(2), shall be included in the hydroseeding process unless stated otherwise in the Project Manual. The application of seed, fertilizer and mulch shall be required in a single operation for all seed applications, unless otherwise directed in the Project Manual. The application of mulch only, as a temporary stabilization method, shall conform to the application requirements specified in Section 8-01.3(4)A. Other mulch materials, if specified in the Project Manual, shall be furnished, hauled, and evenly applied at the rates indicated, and shall be spread on seeded areas immediately after seeding unless otherwise specified.

Distribution of straw mulch material shall be by means of an approved type mulch spreader which utilizes forced air to blow mulch material on seeded areas. In spreading straw mulch, the spreader shall not cut or break the straw into short stalks.

Areas not accessible by mulching equipment shall be mulched by approved hand methods.

Mulch sprayed on signs or sign structures shall be removed the same day.

8-01.3(6) SOIL BINDER OR TACKING AGENT (2-4-93)

Delete this section and replace with the following:

Unless specified otherwise, wood cellulose fiber mulch (per Section 9-14.4(2)) shall have tackifier incorporated into the mulch fiber during manufacture. If additional tackifier is required by the Project Manual, the tackifier shall be as specified in Section 9-14.4(7). When specified, soil binders and tacking agents shall be applied in accordance with the manufacturer's recommendations.

8-01.3(7) DATES FOR APPLICATION OF SEED, FERTILIZER, AND MULCH (11-18-96)

Delete this section and replace with the following:

Unless otherwise approved by the Engineer, seeding, fertilizing, and mulching of slopes shall be performed during the following periods of any year at the location shown:

1. West of the Cascade Range summit--April 1 to May 31 and September 1 to October 15.
2. Written permission to seed between June 1 to August 31 and October 16 to March 31 will only be given when completion of the project is imminent and the environmental conditions are conducive to satisfactory growth. Application of pre-germinated seed, moisture retention agents and/or provision for supplemental watering may be required by the Engineer.

All roadway excavation and embankment slopes, including excavation and embankment slopes that are partially completed to grade, must be prepared and seeded during the first available planting period and shall not be allowed to sit idle for long periods of time without receiving the erosion control specified in the contract.

When environmental conditions are not conducive to satisfactory results from seeding operations, the Engineer may order the work suspended, and it shall be resumed only when the desired results are likely to be obtained.

8-01.4 MEASUREMENT

Supplement this section with the following:

Measurement for "Erosion Control Silt Fence" will be by the linear foot of fence, exclusive of overlaps. Should the silt fence be relocated as work proceeds, the linear foot of fence shall be measured in its new position exclusive of any overlap with its previous location(s).

8-01.5 PAYMENT

Add the following pay item to paragraph one:

(7) "Erosion Control Silt Fence," per linear foot.

Supplement this section with the following:

The unit contract price for "Erosion Control Silt Fence" shall include all costs for the work required to furnish, install and remove the fence as directed by the Engineer.

SECTION 8-02 ROADSIDE PLANTING

8-02.1 DESCRIPTION

Delete this section and replace with the following:

This work shall consist of preparing designated areas for planting and furnishing planting material to be installed by others. Trees, whips, shrubs, ground covers, seedlings, cuttings, and sod will hereinafter be collectively referred to as, "plants" or "plant material."

8-02.2 MATERIALS

Delete this section and replace with the following:

Materials shall meet the requirements of the following Sections:

Planting Soil	9-14
Roadside Planting Soil	9-14
Planting Soil Type B	9-14
Decomposed Organic Mulch	9-14
Seed	9-14
Fertilizer	9-14
Mulch	9-14
Irrigation Water	9-25

Nomenclature for plant names and varieties shall be in accordance with the latest edition of "Standardized Plant Names" as prepared by the American Joint Committee on Horticulture Nomenclature.

Planting Soil shall be used unless otherwise specified on the Drawings or in the Project Manual.

The type of seed mix shall be as specified in the Project Manual.

Planting mulch for topdressing shall consist of bark mulch unless otherwise specified on the Drawings or in the Project Manual.

8-02.3 CONSTRUCTION REQUIREMENTS

8-02.3(1) RESPONSIBILITY DURING CONSTRUCTION

Delete this section and replace with the following:

***The Contractor shall provide adequate and proper care of all plant material delivered to the job site until it is installed by others. There will be no landscape establishment period on this contract.**

Adequate and proper care shall include, but is not limited to, keeping all plant material in a healthy growing condition by watering, mulching, sheltering from wind and sun exposure and protection from loss and vandalism. The Contractor shall have sole responsibility for the survival of all plant material from the time of delivery to the site until it is installed in the ground by others.

On order of the Engineer, dead, diseased, dying or broken plants shall be removed and replaced with healthy plants of the same type and size before installation by others.*

8-02.3(4) PLANTING AREA PREPARATION

Delete this section and replace with the following:

Areas to receive plant material shall include areas delineated with cross-hatching on the plans and areas behind the property line or sidewalk as field directed by the Engineer and shall be cleared, grubbed, cultivated and graded prior to planting. Herbicide shall be applied to vegetated areas prior to clearing and grubbing operations when required by the Engineer. Planting areas shall be prepared so that they are weed and debris-free at the time of planting and until Acceptance by the Owner. Planting areas shall include all planting beds, areas 5 feet in diameter around trees and shrubs, and areas indicated as such on the Drawings or designated by the Engineer.

Where it is necessary to establish the subgrade for a planting area by any combination of excavation, fill or embankment construction, the work shall be performed in accordance with the requirements of Section 2-03. The elevation of the subgrade shall take into account the requirements, if any, for adding and incorporating fill or embankment material into the natural soil, including the required quantities of planting soil and soil amendments, plus a minimum of 2 inches of mulch as topdressing. Fills and embankments shall be placed in lifts not exceeding 6 inches, with each lift compacted to 85% maximum density, as determined by the compaction control test specified in Section 2-03.3(14)E.

Planting areas shall be graded to finished subgrade and cleaned of all debris including stumps, sticks, roots and rocks or lumps larger than 3 inches and inspected before planting soil or mulch is placed.

After the subgrade of the planting areas has been graded and cleaned, planting soil and/or decomposed organic mulch, along with fertilizer and/or soil conditioners as specified in the Project Manual, shall be applied to a maximum depth of 3 inches and rototilled 6 inches into the subgrade over the entire planting area to obtain a 50-50 blend. Planting soil or decomposed organic mulch shall not be placed when the ground or planting soil is frozen, excessively wet or, in the opinion of the Engineer, in a condition detrimental to the work. When the finished grade requires more than a 6-inch lift of imported material, the initial lift shall be 3 inches and shall be rototilled 6 inches into the native subgrade. Subsequent lifts shall be 6 inches maximum in depth and compacted to 85%. The final lift shall incorporate the soil amendments and shall be rototilled to a homogenous blend. Planting areas shall then be evenly sloped from the ridge line to a point 2 inches below the surrounding surfaces. The ridge line shall be the approximate centerpoint of the planting area as shown on the Drawings.

The finished grade of planting soil prior to the installation of plant material shall be 2 inches below the top of the sidewalks or curbs to allow for 2 inches of mulch as topdressing.

Planting holes for all trees shown on the plan shall be prepared by the Contractor for planting by others by incorporating 1/3 c.y. decomposed organic mulch into a 5 foot diameter x 18 inch deep area centered on the tree. The Contractor shall place wood stakes with names of trees identified on the stake according to the information provided on the plans. The Contractor shall provide a minimum of 5 working days for stake locations to be approved prior to preparation of planting holes. The Contractor shall notify the Engineer when stakes are in place.

8-02.3(9) MULCH (3-18-93)

Delete this section and replace with the following:

Planting mulch shall be as specified in Section 9-14.4(3). Decomposed organic mulch shall comply with the provisions of Section 9-14.4(8) and, when used in planting bed preparation, shall be applied to a settled lift thickness of 3 inches, rototilled into a 3-inch depth of subgrade soil to obtain a 6 inch deep 50/50 percent blend of mulch and subgrade soil unless otherwise specified in the Project Manual. Wood chips, salvaged from clearing and grubbing operation, may be used for mulch topdressing if so indicated in the Project Manual or as allowed by the Engineer.

8-02.3(10) SOIL AMENDMENTS (3-18-93)

Delete this section and replace with the following:

Soil amendments of the type and in the quantities specified shall be applied during planting area preparation (8-02.3(4)) as directed by the Engineer to upgrade the topsoil or the decomposed organic mulch to the required standards as determined by soil testing. The soil amendments shall be thoroughly mixed with topsoil or mulch to produce a uniform blend as indicated in the Drawings or Contract Documents. All amendments shall be delivered to the site in the original, unopened containers bearing the manufacturer's guaranteed chemical analysis and name. In lieu of containers, amendments may be furnished in bulk, and a certificate from the manufacturer indicating the above information shall accompany each delivery. Cost for amendments required to provide an adequate medium for plant growth shall be incidental to the bid item for topsoil or decomposed organic mulch.

8-02.3(13) PLANT REPLACEMENT

Delete this section and replace with the following:

***The Contractor shall be responsible for caring for all furnished plant material until plant material is installed by others. The Engineer will inspect plant material prior to installation by others. Any plant material rejected shall be removed and replaced by the Contractor at no additional cost to the Owner.**
All replacement plants shall be of the same species, size and quality as the plants they replace.*

8-02.3(14) LAWN INSTALLATION (11-18-96)

Delete this section in its entirety and replace with the following three subsections:

8-02.3(14)A GENERAL (11-18-96)

Lawn installation shall include all areas delineated with grass symbol on the the plans and areas behind the property line or sidewalk as field directed by the Engineer. Payment shall be by "Seeded Lawn Installation" as specified in the Bid Form. It shall not include Lawn Establishment but shall be subject to inspection per 8-01.3(10).

In areas irrigated by a sprinkler system, lawn installation shall not begin until the sprinkler system is operational. The Contractor may request the Engineer to approve the option of sodding in lieu of seeding for lawn installation. However, seeding in lieu of sodding will not be allowed.

Planting soil or decomposed organic mulch for both seeded or sodded lawns shall be placed at a uniform thickness to meet finish grade. The planting soil or mulch shall be rototilled to achieve a blend with the subsoil and shall then be raked to a smooth even grade without low areas to trap water, and compacted. Lime shall be incorporated at the time of cultivation at the rate of 100 pounds per 1000 square feet.

Barriers shall be erected, with warning signs where necessary, to preclude pedestrian traffic across newly placed lawn areas during the establishment period or as approved by the Engineer.

Finish grade shall be considered as being 1 inch below the adjacent sidewalk, curb or other street improvements.

8-02.3(14)B SEEDED LAWNS (11-18-96)

Dates for application of seed, fertilizer, and mulch shall comply with Section 8-01.3(7). Seeded lawn installation shall proceed through the following sequence of steps in its construction:

1. Areas to receive seed shall be cleared and grubbed, and the surface graded to a uniform level surface, 1 inch below curb and sidewalk elevation. If the surface is at finish grade and the existing soil consists of sandy loam, no planting soil or decomposed organic mulch will be required. Where fill is required, planting soil shall be provided to bring the surface to final grade. If the existing soil is unacceptable for seeding, the Contractor shall remove enough material to allow for the placement of 2 inches of planting soil to bring the surface to the finish grade for seeding.
2. After the planting soil or mulch, when required, has been spread to the depth specified, with lime added at the rate of 100 pounds per 1000 square feet, the area shall be mechanically tilled into the subgrade to a depth of 4 inches or more as required to produce a blend with the subsoil. It shall then be raked by approved hand or mechanical methods to remove all large clods, rocks, debris, and litter over 1 inch in any dimension which shall be disposed of by the Contractor.
3. The area shall then be rolled in 2 directions, the second rolling at right angles to the first. The roller shall be of a standard, waterfilled type to apply 150 to 300 pounds per square foot ground pressure.
4. The finished grade shall be 1 inch below all curbs, sidewalks, and other appurtenances.
5. Apply a 10-10-10 fertilizer at the rate of 15 pounds per 1,000 square feet. The fertilizer shall be applied by an approved hand or mechanical method. Application in one direction is sufficient.
6. Apply lawn seed mix as described in Section 9-14.2(3) unless otherwise directed in the Project Manual.
7. Rake seed and fertilizer into the top 1/2 to 1 inch of soil.
8. Roll the area in 1 direction.
9. Water thoroughly.

NOTE: Items 5 to 9 may be accomplished by hydro-seeding as described in Section 8-01.3(4)A.

8-02.3(23) TREE ROOT PRUNING PROCEDURE

Delete this section and replace with the following:

Root structure 2 inches or greater shall not be cut. All tree roots 2 inches or greater shall be tunneled under. Roots smaller than 2 inches must be cleanly cut flush with the edge of the trench. No ripping or tearing of the root structure will be allowed. See Section 1-07.16(2).

8-02.4 MEASUREMENT (2-4-93)

Delete this section and replace with the following:

Bid items of work completed pursuant to Contract Documents will be measured as provided in Section 1-09.1, Measurement of Quantities, unless otherwise provided for by individual measurement paragraphs in this Section.

The pay quantities for plant materials will be determined by count of the number of satisfactory plants in each category accepted by the Engineer.

Seeded lawn and sod installations will be measured by ground slope measurement in square feet of actual lawn completed, established, and accepted.

Measurement for "Planting Soil," "Mulch, Bark", "Decomposed Organic Mulch", **"Decomposed Organic Compost" and "Roadside Planting Soil"** shall be per cubic yard measured in the hauling conveyance at the point of delivery. The Contractor shall notify the Engineer at least 24 hours prior to material delivery to ensure the Engineer's presence for measurement at the time of delivery. No payment will be made for material deliveries not witnessed by the Engineer.

8-02.5 PAYMENT

Delete this section and replace with the following:

Compensation for the cost necessary to complete the work described in Section 8-02 will be made at the unit contract prices bid only for the pay items listed below:

(1) "Furnish Tree, (Type) (Size)," per each.
(2) "Furnish Shrub, (Type), (Size)," per each.
(3) "Furnish Ground Cover, (Size)," per each.
(4) “Furnish Perennial/Fern, (Size),” per each.
(5) “Furnish Wetland Plants, (Size),” per each.

The unit contract price for furnished trees, shrubs, perennial/fern, wetland and ground cover plants shall include all costs for the work required to furnish, deliver, store and care for all plant material prior to installation by others.

(6) "Planting Soil," per cubic yard.
(7) **“Roadside Planting Soil,” per cubic yard.**

The unit contract price for "Planting Soil” **and “Roadside Planting Soil”** shall include all costs to furnish, mix, place and grade the planting soil as specified.

No separate payment will be made for Planting Soil Type B. Payment for the work required to furnish, field mix and install Planting Soil Type B in accordance with Section 2-03.3(19) will be made at the unit contract price bid for “Decomposed Organic Compost”.

(8) "Mulch, (Type)," and "Decomposed Organic Mulch," **and “Decomposed Organic Compost”** per cubic yard.

The unit contract price for "Mulch, (Type)”, "Decomposed Organic Mulch" and **“Decomposed Organic Compost”** shall include all costs to furnish, install and rototill the mulch **or compost** as specified.

(9) "Seeded Lawn Installation," per square foot.

The unit contract price for "Seeded Lawn Installation," and "Sodding" shall include all costs for the work required to prepare the area, plant or sod the lawn as specified in Section 8-02.3(14) and 8-02.3(15). No additional payment will be made for the work required to regrade, reseed, resod, or refertilize the area when directed by the Engineer to meet the requirements of Section 8-02.3(15).

When the bid item "Seeded Lawn Installation", is included in the Bid Form, sodding in lieu of seeding for lawn installation, in accordance with Section 8-02.3(14)A, shall be paid at the unit contract price bid for "Seeded Lawn Installation" and no additional payment will be made.

Any incidental work required to complete the seeded lawn installation or sod installation, as specified herein but not specifically mentioned, shall be incidental to, and all costs therefore shall be included in the unit contract price of the bid item.

(10) Other payment information.

Payment for clearing and grubbing shall be in accordance with Section 2-01.5

Payment for establishing the subgrade of planting areas prior to actual planting by excavation or embankment construction shall be in accordance with Section 2-03.5

Payment for fill material of the type specified shall be by the cubic yard in accordance with Section 4-01.5.

Payment for furnishing and placing topsoil shall be in accordance with Section 8-01.5.

Fertilizer and other soil amendments specified in Section 8-02 but not set forth in the Bid Form as a separate Bid Item shall be included in the unit contract price of the Bid Item for which its use was necessary.

Any incidental work required to complete the roadside planting specified herein, but not specifically mentioned in these specifications shall be incidental to the roadside planting, and all costs therefore shall be included in the unit contract prices of the bid items.

SECTION 8-04 CEMENT CONCRETE CURB, CURB AND GUTTER

8-04.4 MEASUREMENT

Supplement this section with the following:

Measurement for “Wheel Stop” will be per each.

8-04.5 PAYMENT

Supplement this section with the following:

***(4) "Curb & Gutter, Cem Conc, Modified," per linear foot.**

The unit contract price for "Curb & Gutter, Cem Conc, Modified" shall include all costs for the work required to construct the modified curb & gutter indicated on the Drawings.

(5) "Wheel Stop," per each.

The unit contract price for "Wheel Stop" shall include all costs for the work required to furnish and install the wheel stops indicated on the Drawings.*

SECTION 8-15 RIPRAP

8-15.2 MATERIALS

Supplement this section with the following:

***Rounded river rock shall be 4-8" size as available from Homestead Valley Sand & Gravel (425.831.6125) or approved equal. River rock called out on the plans shall be rounded river rock as specified.**

8-15.4 MEASUREMENT

Supplement this section with the following:

Measurement for "Rounded River Rock, (Size) " will be by the ton.

8-15.5 PAYMENT

Supplement this section with the following:

***(8) "Rounded River Rock, (Size)," per ton.**

The unit contract price for "Rounded River Rock, (Size)" shall include all costs for the work required to furnish and install rounded river rock at locations indicated on the Drawings.*

SECTION 8-19 CEMENT CONCRETE DRIVEWAY AND ALLEY RETURN

8-19.2 MATERIALS (5-5-95)

Delete paragraph two and replace with the following:

The concrete mix for driveways and alley returns shall meet the requirements for Class 6(1-1/2) or Class 6(3/4) concrete. Slump of concrete shall not exceed 3-inches.

SECTION 8-23 SWALE LINERS (New Section)

8-23.1 DESCRIPTION (New Section)

The work shall consist of supplying and installing clay liner in the Vegetated Swales or PVC liner in the bermed area of Vegetated Swales and Flow Monitoring Pool as shown on the Drawings and/or as directed by the Engineer.

8-23.2 MATERIALS (New Section)

Polyvinyl Chloride (PVC) liner shall be 20 mL thickness with a 300 lbs/in tear resistance as available from Staff Industries, Inc (313.259.1818) or approved equal.

8-23.3 CONSTRUCTION REQUIREMENTS (New Section)

Clay liner shall be a continuous six-inch depth throughout the bottom of the Vegetated Swale. On the bottom of the vegetated swale, the top surface of the clay liner shall be a minimum of 1-foot below the Bottom Swale Elevation (BSE). On the side surfaces of the vegetated swales, clay liner shall be a minimum of eight-inches below the finished grade of the Vegetated Swales side slope. Clay liner shall side slopes shall extended around the Vegetated Swale to a minimum elevation of the overflow pipe invert elevation. Clay liner shall not be placed when the clay is frozen, excessively wet or, in the opinion of the Engineer, in a condition detrimental to the work.

PVC liner shall be installed in the bermed area of the Vegetated Swales when the berm height is greater than one foot above the adjacent road or concrete walk finished grade elevation. PVC Liner shall be stapled to 2 inch by 2 inch wood posts, standard or better grade. Wood posts shall be placed 3 foot maximum apart and imbedded a minimum of 1 foot into native soil. The top of PVC liner and wood post shall be a minimum of 3 inches below the berm's finished grade elevation. The bottom elevation of the PVC liner shall be a minimum of 3 inches below the adjacent road or concrete walk finished grade elevation.

8-23.4 MEASUREMENT (New Section)

Measurement for "Clay Liner" will be per cubic yard.
Measurement for "PVC Liner" will be per square foot.

8-23.5 PAYMENT (New Section)

Compensation for the cost necessary to complete the work described in Section 8-02 will be made at the unit contract prices bid only for the pay items listed below:

(1) "Clay Liner," per cubic yard.
(2) "PVC Liner," per square foot.

The unit contract price for "Clay Liner" shall include all costs for the work required to provide and install the clay liner as specified.

The unit contract price for "PVC Liner" shall include all costs for the work required to provide and install the PVC liner as specified.

DIVISION 9

MATERIALS

SECTION 9-02 BITUMINOUS MATERIALS

9-02.1(4) PAVING ASPHALT

Delete this title and section and replace with the following:

9-02.1(4) PAVING ASPHALT CEMENT (5-12-99)

Paving asphalt cement shall be PG 64-22 and meet the requirements of AASHTO MP1 for performance graded asphalt cement.

SECTION 9-03 AGGREGATES

9-03.0 GENERAL (12-4-91)

Supplement this section with the following:

Crushed concrete may be substituted for crushed surfacing, roadway ballast, gravel base, foundation material, and backfill for trenches providing it meets the grading requirements specified in Section 9-03.16.

9-03.8(2) TEST REQUIREMENTS (5-15-91)

Delete the table following sentence 1 of paragraph 1 and replace with the following:

Aggregate for asphalt concrete shall meet the following test requirements:

	Class of Asphalt Concrete					
	A	B	D	E	F	G
Fracture, by weight (See Note)	1	2	3	4	4	2
Sand Equivalent Minimum	45	45	--	45	35	45

[1]The fracture requirements are at least one fractured face on 90 percent of the material retained on each sieve size US No. 10 and above, if that sieve retains more than 5 percent of the total sample.

[2]The fracture requirements are at least one fractured face on 75 percent of the material retained on each sieve size US No. 10 and above, if that sieve retains more than 5 percent of the total sample.

[3]The fracture requirements are at least two fractured faces on 75 percent and at least one fractured face on 90 percent of the material retained on each sieve, US No. 8 and above, if that sieve retains more than 5 percent of the total sample.

[4]The fracture requirements are at least one fractured face on 50 percent of the material retained on each sieve size US No. 10 and above, if that sieve retains more than 5 percent of the total sample.

Delete the table in paragraph 3 and replace with the following:

		Class of Asphalt Concrete					
		A	B	D	E	F	G
Stabilometer Value	Min.	37	35	--	35	35	35
Cohesiometer Value	Min.	100	100	--	100	50	100
Percent Air Voids		2-4.5	2-4.5	--	2-4.5	2-4.5	2-4.5
Modified Lottman Stripping Test		Pass	Pass		Pass	Pass	Pass

The stabilometer value for asphalt concrete containing 50 percent or greater of recycled asphalt concrete shall be 30 minimum.

Mineral aggregates utilized in MC 250 and MC 800 asphalt concrete mixes shall meet the same requirements as the aggregates used in Asphalt Concrete Cl B.

9-03.8(6) PROPORTIONS OF MATERIALS (7-6-93)

Delete this section and replace with the following:

The materials of which asphalt concrete is composed shall be of such sizes, gradings, and quantities that, when proportioned and mixed together, they will produce a well graded mixture within the requirements listed in the table which follows.

For the determination of a Project Mix Design, the Contractor shall submit to the Engineer representative samples of the various aggregates to be used along with gradation data showing the stockpile averages and variation of the aggregates as produced together with proposed combining ratios and average gradation of the completed mix. The initial asphalt content shall be determined by the Engineer from the aggregates and data provided.

The percentages of aggregate, including mineral filler, when used, refer to the completed dry mix. The percentage of asphalt refers to the complete asphalt concrete mixture.

GRADING AND ASPHALT REQUIREMENTS

	Class A	Class B	Class D	Class E	Class F	Class G
Sieve Size			**Percent Passing**			
1-1/4" square	---	---	---	100	---	---
1" square	---	---	---	90-100	---	---
3/4" square	100	---	---	---	100	---
5/8" square	---	100	---	67-86	---	---
1/2" square	90-100	90-100	100	60-80	80-100	100
3/8" square	75-90	75-90	97-100	---	---	97-100
1/4" square	55-75	55-75	---	40-62	45-78	60-88
U.S. No. 4	---	---	30-50	---	---	---
U.S. No. 8	---	---	5-15	---	---	---
U.S. No. 10	30-42	30-42	---	25-40	30-50	32-53
U.S. No. 40	11-24	11-24	---	10-23	---	11-24
U.S. No. 80	6-15	6-15	---	6-14	---	6-15
U.S. No. 200	3-7	3-7	2-5	2-9	2-8	3-7
Mineral Filler	3.0-7.0	3.0-7.0	2.0-5.0	2.0-9.0	2.0-8.0	3.0-7.0
Asphalt % of total mixture	4.0-7.5	4.0-7.5	5.5-8.5	3.5-7	4-7	4-7.5
Sand-Silt Ratio	5.5-10.5	5.5-10.5	---	---	---	5.5-10.5

All percentages are by weight.

Aggregate gradings within the above ranges shall be such that there will be a minimum of 2 percent of the total aggregate retained between any successive pair of sieves finer than the U.S. No. 10. The gradings shall be of such uniformity that the fractions of aggregate passing the 1/4 inch and U.S. No. 10 during the day's run shall conform to the following limitations:

1. Maximum variation in percentage of material passing 1/4" square: 10
2. Maximum variation in percentage of material passing U.S. No. 10: 8

For asphalt concrete Classes A, B, E, F and G produced using recycled asphalt materials, the sand silt requirements and the gradation for the U.S. #200 sieve for the asphalt concrete for placement in areas other than the wearing course of traveled lanes are revised as follows:

	Passing U.S. #200	Sand/Silt
50%-60% Recycled Material	3.0-8.0%	Waived
61%-70% Recycled Material	3.0-9.0%	Waived
71%-100% Recycled Material	3.0-10.0%	Waived

9-03.16 MINERAL AGGREGATE CHART (3-23-99)

Note revisions to Mineral Aggregate Type 9 gradation and Mineral Aggregate Type 26 description; delete this section and replace with the following:

SECTION 9-03.18 BANADERA WEATHERED GRANITE ROCK (New Section)

The Bandera Weathered Granite Rocks shall be from Marenakos Rock Center or approved equal. If a source other that Maranakos is proposed, the Engineer shall inspect rocks at the quarry for approval of material prior to its delivery on site. Rock shall be approximately 165 pounds per cubic foot.

Size	Approximate Weight	Approximate Diameter
Two-man rock	300 lbs. to 1000	24 to 36 inches
Three-man rock	1000 to 2000 lbs.	36 to 48 inches

SECTION 9-04 JOINT AND CRACK SEALING MATERIALS

9-04.3 JOINT MORTAR (3-21-96)

Delete this title and section and replace with the following title and two subsections:

9-04.3 MORTAR AND NON-SHRINK CEMENT SAND GROUT (3-21-96)

9-04.3(1) MORTAR (3-21-96)

Mortar shall be produced using Type I, II, or III cement, fine aggregate Class 1 or 2, and water in proportion applicable to the application. Generally the proportions are one part cement to two or three parts fine aggregate with just enough water to make a stiff consistency. The mortar mix shall be approved by the Engineer before use.

9-04.3(2) NON-SHRINK CEMENT SAND GROUT (3-21-96)

Non-shrink cement sand grout used for grouting anchor bolts and bridge bearings may be a prepackaged grout or produced using Type I, II, or III cement; fine aggregate Class 1 or 2; and sufficient water to make a workable mix with flowability suitable for the intended application. Compressive strength shall be 4000 psi @ 3-days.

Non-shrink cement sand grout for pipe connections to manholes, catch basins, inlets, and similar utility appurtenances; installing tees; and similar uses shall meet the following requirements:

1. 1-part, by weight,Type III (HES) cement;
2. 2-parts, by weight, clean fine aggregate Class 1 or 2; and
3. Sufficient water to obtain a stiff consistency.

Unpolished aluminum powder shall be added to the dry cement in the proportion of one heaping teaspoonful per sack of cement no more than 30 minutes before the grout mixture reaches its final in-place position. The required compressive strength (fc) shall be 4,000 psi @ 7-days.

Non-shrink cement sand grout used for grouting tendons shall be as specified in Section 6-02.3(26)G.

Compressive strength shall be determined by fabricating cubes per WSDOT Method 813 and testing their compressive strength per ASSHTO T-106.

The strength shall be confirmed by Schmidt hammering of the pads.

SECTION 9-05 SANITARY SEWER AND STORM DRAIN STRUCTURES, CULVERTS, AND CONDUITS

9-05.14 PLASTIC FOAM (New Section) (8-30-90)

Polyethylene plastic foam used in sanitary sewer and storm drain construction shall meet the Federal Spec. PPP-C-1752B Type 1, Class 2.

SECTION 9-12 MANHOLES, CATCH BASINS AND INLETS

9-12.4(1) MORTAR FOR JOINTING (3-28-96)

Revise reference to Section 7-05.3(6)C8 to read "7-05.3(1)K".

9-12.6 CONCRETE BRICK (8-30-90)

Delete this section and replace with the following:

Concrete brick shall conform to the specification for Concrete Building Brick, ASTM C 55 Grade S.

9-12.7 CLAY BRICK (5-15-91)

Delete this section and replace with the following:

Clay brick shall conform to ASTM C 32, Grade MM.

SECTION 9-14 EROSION CONTROL AND ROADSIDE PLANTING

9-14.1(4) PLANTING SOIL TYPE D (10-18-94)

Delete this title and section and replace with the following:

9-14.1(4) PLANTING SOIL (10-18-94)

Planting soil shall consist of approximately two-thirds soil and one-third decomposed organic mulch (Section 9-14.4(8)) by volume, thoroughly mixed together.

The ingredients to be used in mixing planting soil shall meet the following requirements:

Soil shall be sandy loam or loamy sand consisting largely of sand, but with enough silt and clay present to give it a small amount of stability. Individual sand grains can be seen and felt readily. On squeezing in the hand when dry, it shall fall apart when the pressure is released; on squeezing when moist, it shall form a cast that will not only hold its shape when the pressure is released, but shall withstand careful handling without breaking.

The soil component shall meet the following gradation requirements:

Sieve Size[1]	Percent Passing
3/8	100
#35	85-100
#100	40-60
#270	10-30

[1]US Standard Sieve Size

The mixture shall be amended to create optimum conditions for plant establishment and early growth using materials such as calcium carbonate or dolomite lime, ureaform or ureaformaldehyde, calcium nitrate, super-phosphate, and sulphate of potash magnesium at rates indicated from a soil test and recommended by an approved independent laboratory, or as directed by the Engineer.

Planting soil shall be pre-mixed prior to bringing to the job site. Amendments shall be incorporated on site per 8-02.3(4).

Site specific soil testing shall be required by the Contractor for all projects requiring more than 100 cubic yards of planting soil. After placement of the planting soil in conformance with Section 8-02.3(4), soil samples shall be taken by the Engineer and submitted to the lab for testing. Test results with recommendations for amendments shall be returned from the lab directly to the Engineer.

Planting soil for projects requiring less than 100 cubic yards of planting soil shall be delivered to the site with a soil fertility and micronutrient analysis from an approved independent laboratory. Amendments shall be incorporated on site per Section 8-02.3(4) and as directed by the Engineer to provide optimum conditions for plant establishment and early growth.

9-14.1(6) PLANTING SOIL TYPE B (New Section)

Planting Soil Type B shall consist of approximately 50% native soil and 50% Decomposed Organic Compost (Section 9-14.4(9)) by volume, thoroughly mixed together.

The mixture shall be amended to create optimum conditions for plant establishment and early growth using materials such as calcium carbonate or dolomite lime, ureaform or ureaformaldehyde, calcium nitrate, super-phosphate, and sulphate of potash magnesium at rates indicated from a soil test and recommended by an approved independent laboratory, or as directed by the Engineer.

Site specific soil testing shall be required by the Contractor. After placement of the planting soil in conformance with Section 2-03.3(19), soil samples shall be taken by the Engineer and submitted to the lab for testing. Soil testing shall include soil fertility and micronutrient analysis from an approved independent laboratory. Test results with recommendations for amendments shall be returned from the lab directly to the Engineer.

9-14.1(7) ROADSIDE PLANTING SOIL (New Section)

Roadside Planting Soil shall be Hendrikus Schraven Lawn Mix as available from Hendrikus Schraven Landscape Construction & Design, Inc. (206.322.8977), or approved equal.

9-14.2(4) SEED MIX #3 (Playground Mix) (3-18-93)

Delete this title and section and replace with the following:

9-14.2(4) SEED MIX #3 (Irrigated Lawn or Athletic Play Field) (3-18-93)

The seed mixture and rate of application shall be as follows:

Kind and Variety of Seed in Mixture	**Percent by Weight**
Turf-type Perennial Rye Grasses from 3 or more of the following varieties:	100%

Barry	Elka	Palmer
Blazer	Gator	Prelude
Citation	Loretta	Regal
Citation II	Manhattan II	Yorktown II
Derby	Omega	
Diplomat	Omega II	

The rate of application shall be 8 pounds per 1000 square feet. No noxious weeds will be permitted. The seed mixture shall be no less than 98% pure, shall have a minimum germination rate of 80%, and shall have no more than 0.5% weed seed.

All seed varieties shall be packed in separate, clean, sound containers of uniform weight. The Contractor shall deliver the seed to the job site in the original containers showing weight, analysis, and name of grower, and shall store in manner that will prevent all wetting and deterioration of seed, until the seed is approved, mixed and sown.

9-14.3 FERTILIZER (12-31-96)

Delete this section and replace with the following:

Fertilizer shall be a standard commercial grade of organic or inorganic fertilizer of the kind and quality specified herein. It may be separate or in a mixture containing the percentage of total nitrogen, available phosphoric acid

and water-soluble potash in the amounts specified. All fertilizers shall be furnished in standard unopened containers with weight, name of plant nutrients and manufacturer's guaranteed statement of analysis clearly marked, all in accordance with State and Federal laws.

Acceptable commercial fertilizer may be supplied in one of the following forms:

(a) A dry free-flowing granular fertilizer suitable for application by agricultural fertilizer spreader.
(b) A soluble fertilizer ground to a fineness that will permit complete suspension of insoluble particles in water, suitable for application by power sprayer.
(c) A granular or pelleted fertilizer, suitable for application by blower equipment.
(d) A non-volatile liquid fertilizer.

Fertilizer shall be standard commercial grade of formulation. Fertilizer provided for all hydro-seeding applications shall be 10-10-10, applied at a rate that will provide 1 pound of nitrogen per 1000 square feet. Secondary fertilizer applications shall be 3-1-2, applied at a rate to provide 2 pounds of nitrogen per 1000 square feet. (1/3 quick-release, 2/3 slow release).

The Contractor shall provide a sample of fertilizer to the Seattle Public Utilities' Materials Laboratory.

9-14.4(2) WOOD CELLULOSE FIBER (2-24-94)

Delete this section and replace with the following:

Wood cellulose fiber mulch shall be specially processed 100 percent virgin wood fiber containing no growth or germination-inhibiting ingredients and shall be dyed a suitable color to facilitate inspection of placement of the material. It shall be manufactured in such a manner that after addition and agitation in slurry tanks with water, the fibers in the material will become uniformly suspended to form a homogenous slurry. When hydraulically sprayed on the ground, the material shall allow the absorption and percolation of moisture.

Each package of cellulose fiber shall be marked by the manufacturer to show the air dry weight content.

The hydro-seeding process shall utilize only 100% virgin wood fiber mulch in which 30% of the fibers shall be 0.15 inches long or longer and which shall have tackifier added to the mulch during the manufacturing process. Tackifier shall be added in accordance with 9-14.4(7). Mulch shall be applied at the following rates depending on the slope of the terrain:

1. 35 pounds per 1000 square feet, or 1500 pounds per acre, for areas having zero to 4:1 slope.
2. 50 pounds per 1000 square feet, or 2000 pounds per acre, for areas having between 2:1 and 4:1 slope.
3. 60 pounds per 1000 square feet, or 2500 pounds per acre, for areas having a slope greater than 2:1.

Terrain that is steeper than 2:1, for areas exceeding 10,000 square feet or having a vertical drop greater than 15 feet, shall be treated with fiber and a supplemental tackifier in accordance with 9-14.4(7).

9-14.4(3) BARK (3-18-93)

Delete this section and replace with the following:

Bark mulch shall consist of Douglas fir, pine, or hemlock bark. It shall be ground so that a minimum of 95 percent of the material will pass through a 1-1/2 inch sieve and no more than 55 percent, by loose volume, will pass through a 1/4-inch sieve. The bark mulch shall not contain resin, tannin, or other compounds in quantities that would be detrimental to plant life.

Wood chips salvaged from clearing and grubbing activity and approved as a substitute for bark mulch, shall be subject to inspection by the Engineer prior to application.

9-14.4(7) TACKIFIER (3-18-93)

Delete this section and replace with the following:

Tackifier used to stabilize mulch shall provide a liquid soil bonding agent which gives immediate erosion protection and remains effective for a minimum of one full year on an undisturbed site.

Tackifier shall not be applied at temperatures below 50 degrees nor in wet or rainy weather. A minimum of 4 to 6 hours of curing time is required for acceptance of the application.

9-14.4(8) DECOMPOSED ORGANIC MULCH

Delete this section and replace with the following:

Decomposed organic mulch shall be comprised entirely of recycled organic materials that have been sorted, ground, aerated and aged for a minimum of one year and of which 100% will pass a 7/16-inch sieve. The mulch shall have a pH between 5.5 and 7.0 and shall have a carbon to nitrogen ratio between 20:1 and 40:1 with a maximum electrical conductivity of 3 ohms/cm. The product shall be tested, and test results shall document specified requirements. Manufacturer shall submit a certified lab report dated within 2-days of submittal. The product shall be certified free of all plant parasitic organisms, viable weed seeds, heavy metals or parasitic residues.

Decomposed organic mulch quantities exceeding 50 cubic yards shall be tested after incorporation per 8-02.3(4) with testing procedure and correction of deficiencies as described in 9-14.1(4).

9-14.4(9) DECOMPOSED ORGANIC COMPOST (New Section)

Decomposed Organic Compost shall be mature, bacterial dominated compost. Thermal composted with a minimum temperature of between 135 and 160 degrees throughout the entirety for at least 15 days prior to curing. At least 90% of the material should pass a ¼ inch screen. Moisture content of the compost should range between 35 and 50%.

Decomposed Organic Compost shall be obtained from Columbia Gorge Organics, Hood River, Oregon, phone (541) 354-1066 or approved equal.

9-14.6(5) INSPECTION (12-31-96)

Delete this section and replace with the following:

The Contractor shall, as soon as practical, inform the Engineer as to the source of plant materials for the project. Approval of plant material for a project shall not be considered as final acceptance. The Contractor shall notify the Engineer not less than 48 hours in advance of delivery of plants from the nursery to insure adequate time for inspection before planting.

Root condition of plants furnished in containers shall be determined by removal of the plant from the container. Plants not meeting the requirements herein specified shall be immediately removed from the project and replaced by the Contractor.